Southern California Association of Governments

System Performance Measures

Mobility and Accessibility Performance Measures
August 16, 2007

System Metrics Group, Inc.

Today we will…

- **Present preliminary mobility and accessibility results for the 2003 Base Year 2035 Baseline, and 2035 Plan models**
  - **2035 Baseline reflects the approved base growth forecast with the baseline projects (projects that are fully committed and funded)**
  - **2035 Plan reflects the approved base growth forecast with additional planned projects from long range plans and county inputs**
- **Review travel demand model 2003 Base Year and 2035 Baseline speed maps for freeways and arterials**

Review: Performance measures communicated the overall performance of the 2004 RTP

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Performance Indicator	Performance Measure(s)	Definition	Performance Outcome
Mobility	• Average Daily Speed	Speed - experienced by travelers regardless of mode	10% improvement
	• Average Daily Delay	Delay - excess travel time resulting from the difference between a reference speed and actual speed. Total daily delay and daily delay per capita are the indicators used.	40% improvement
Accessibility	• Percent PM peak period work trips within 45 minutes of home		Auto: 90% Transit: 37%
	• Distribution of work trip travel times		Auto: 8% improvement Transit: 8% improvement
Reliability	• Percent variation in travel time	Day-to-day change in travel times experienced by travelers. Variability results from accidents, weather, road closures, system problems and other non-recurrent conditions.	10% improvement
Safety	• Accident Rates	Measured in accidents per million vehicle miles by mode.	0.3% improvement
Cost-Effectiveness	• Benefit-to-Cost (B/C) Ratio	Ratio of benefits of RTP investments to the associated investment costs.	$3.08

NOTE: improvements shown in the above table compare 2004 RTP 2030 results against Baseline 2030 results

Review: Performance measures communicated overall performance… continued

Performance Indicator	Performance Measure(s)	Definition	Performance Outcome
Productivity	• Percent capacity utilized during peak conditions	Transportation infrastructure capacity and services provided. • Roadway Capacity - vehicles per hour per lane by type of facility. • Transit Capacity - seating capacity utilized by mode.	 20% improvement at known bottlenecks N/A
Sustainability	• Total cost per capita to sustain current system performance	Focus is on overall performance, including infrastructure condition. Preservation measure is a subset of sustainability.	$20 per capita, primarily in preservation costs
Preservation	• Maintenance cost per capita to preserve system at base year conditions	Focus is on infrastructure condition. Subset of sustainability.	Maintain current conditions
Environmental	• Emissions generated by travel	Measured/forecast emissions include CO, NOX, PM_{10}, SOX and VOC. CO_2 as secondary measure to reflect greenhouse emissions.	Meets conformity requirements
Environmental Justice	• Expenditures by quintile and ethnicity • Benefit vs. burden by quintiles	Proportionate share of expenditure in the 2004 RTP by each quintile Proportionate share of benefits to each quintile ethnicity Proportionate share of additional airport noise by ethnic group	No disproportionate impact to any group or quintile

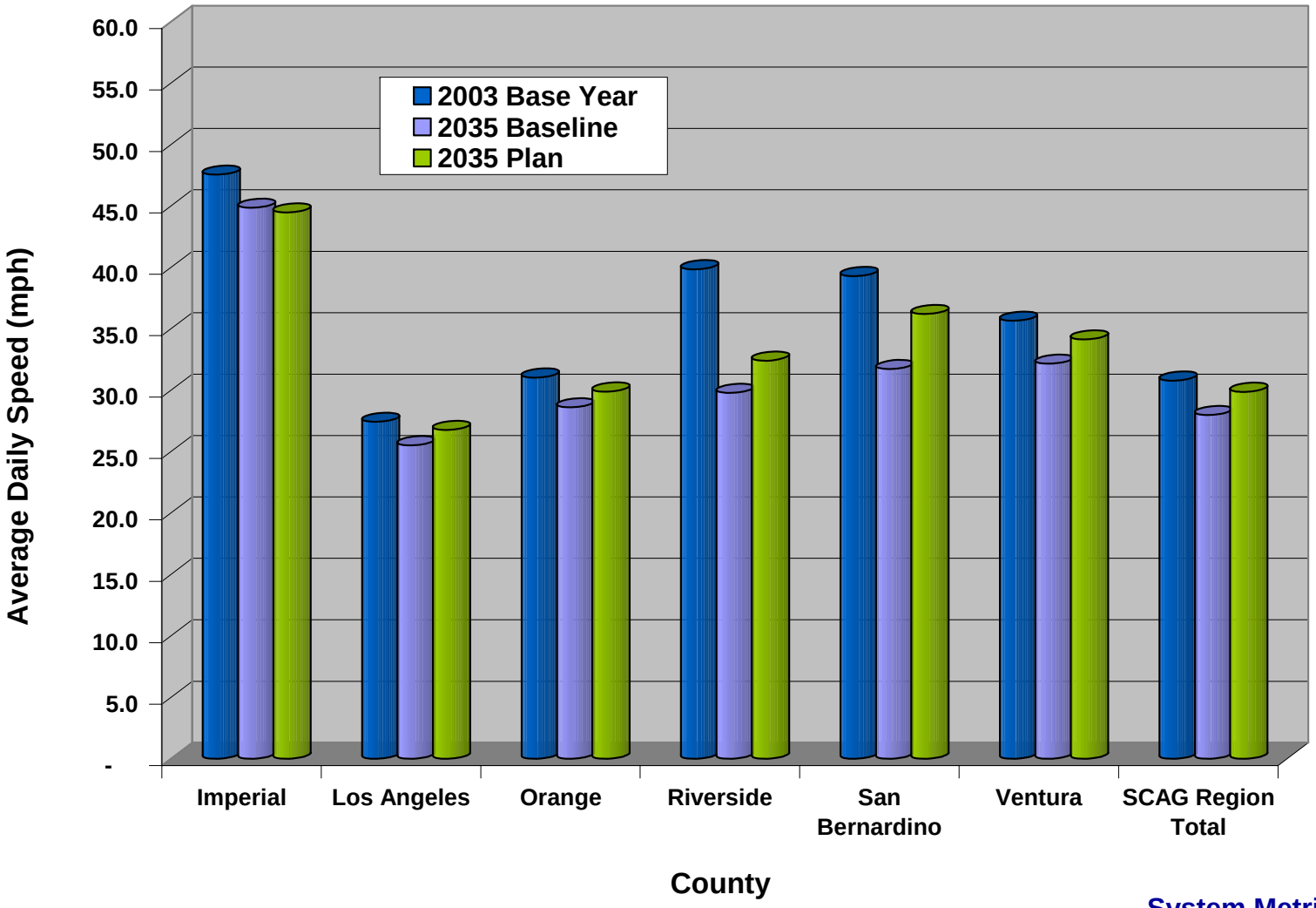
Note: Performance Outcomes are estimated for the Plan as a whole in 2030 and not on a project-by-project basis.

NOTE: improvements shown in the above table compare 2004 RTP 2030 results against Baseline 2030 results

Mobility is measured by speeds, delay, and delay per capita

- Speeds are the average system speeds measured by daily Vehicle-Miles Traveled/Vehicle-Hours Traveled (VMT/VHT)
  - These values come directly from the travel demand model
- Delay is measured as the daily person hours of delay
  - This value is derived from auto + truck vehicle-hours of delay multiplied by average daily vehicle occupancies
- Delay per capita is the person hours of delay normalized by the county and regional population estimates/forecasts from the Department of Finance
  - Though not a perfect measure of the delay experienced by the public (e.g., some people do not travel during the day), it is a proxy for how well the region is managing delay given population growth
- We also have maps from the travel demand model to show where freeway and arterial speeds for the different models

Mobility: Average Daily Speeds 2003, 2035 Baseline & Plan



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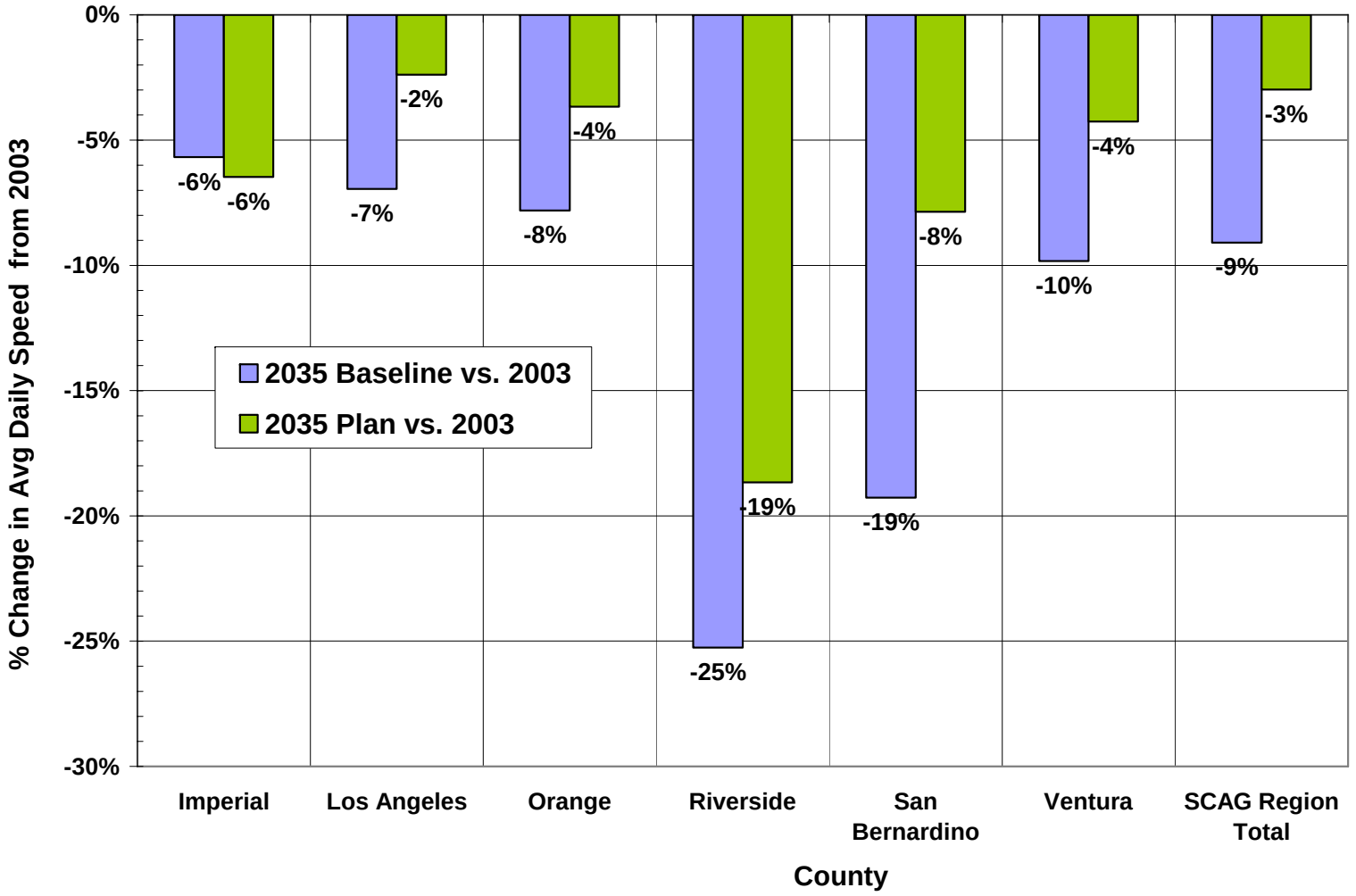
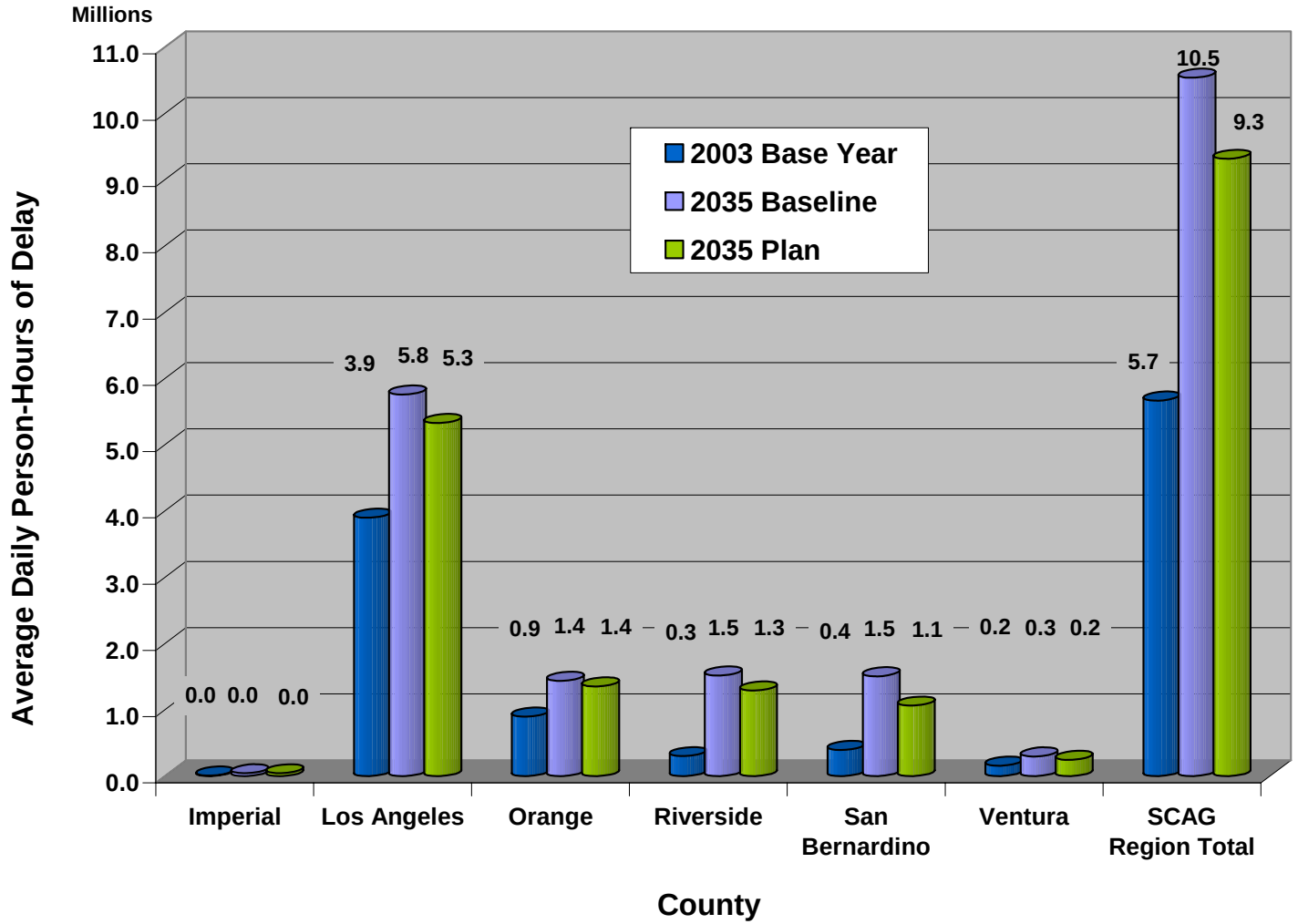
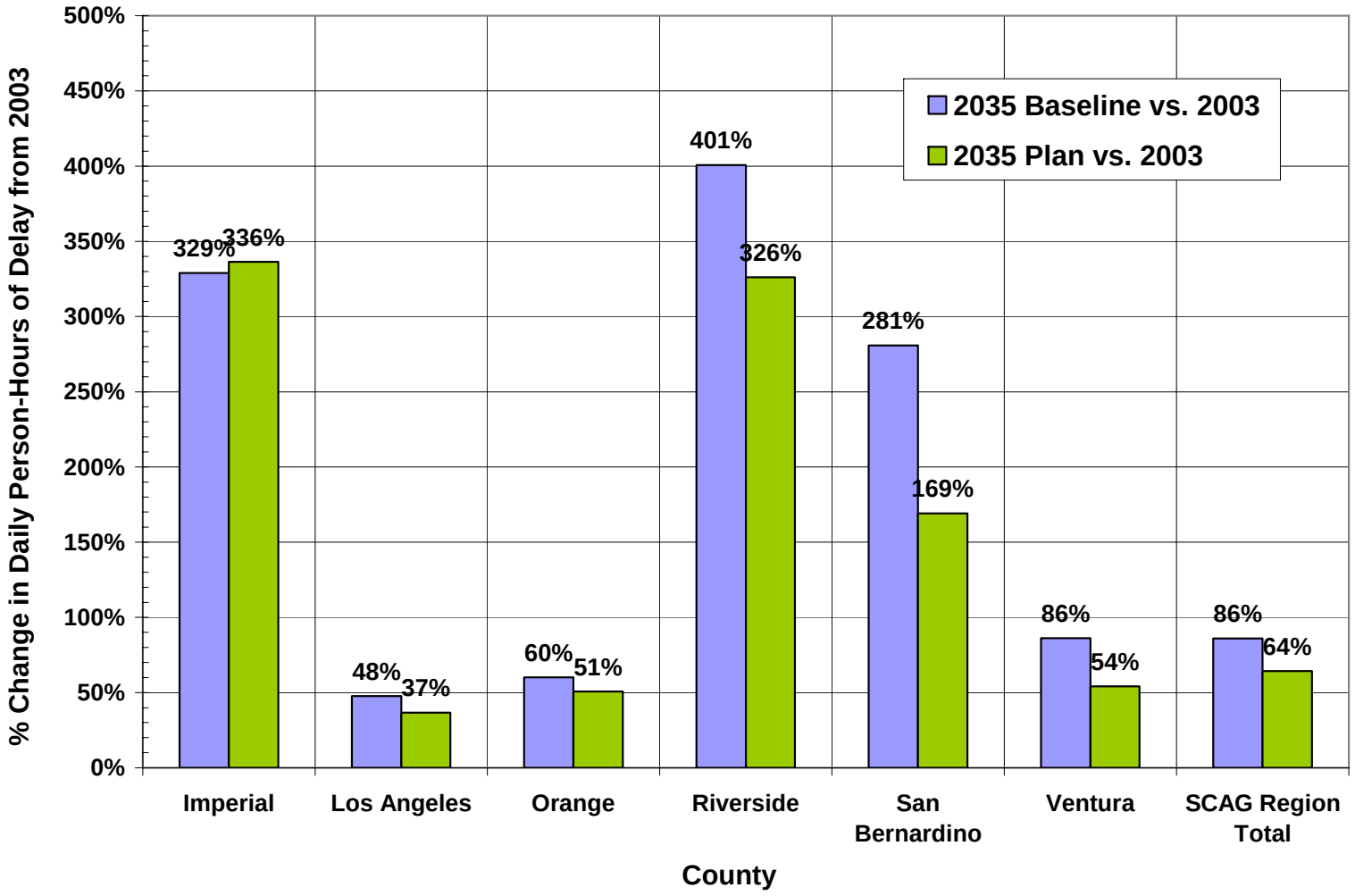
Mobility: Speeds are projected to decline regionwide by 9% under the baseline, but 3% under the Plan



Mobility: Average Daily Person Hours of Delay 2003, 2035 Baseline & 2035 Plan



Mobility: Average Daily Person Hours of Delay regionwide nearly doubles under Baseline, and grows by around 64% under the Plan



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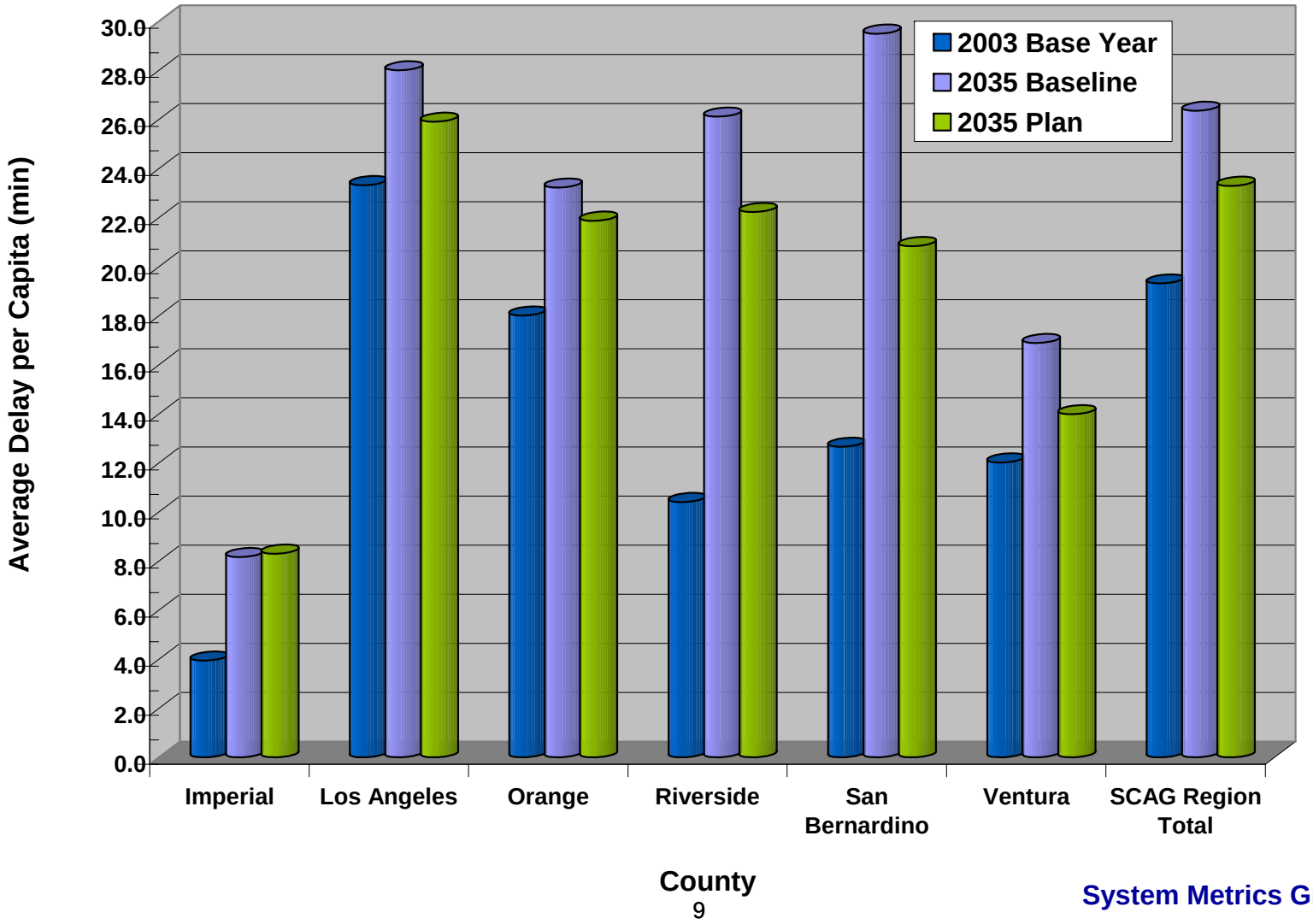
Mobility: Person Minutes of Delay per Capita 2003, 2035 Baseline & 2035 Plan



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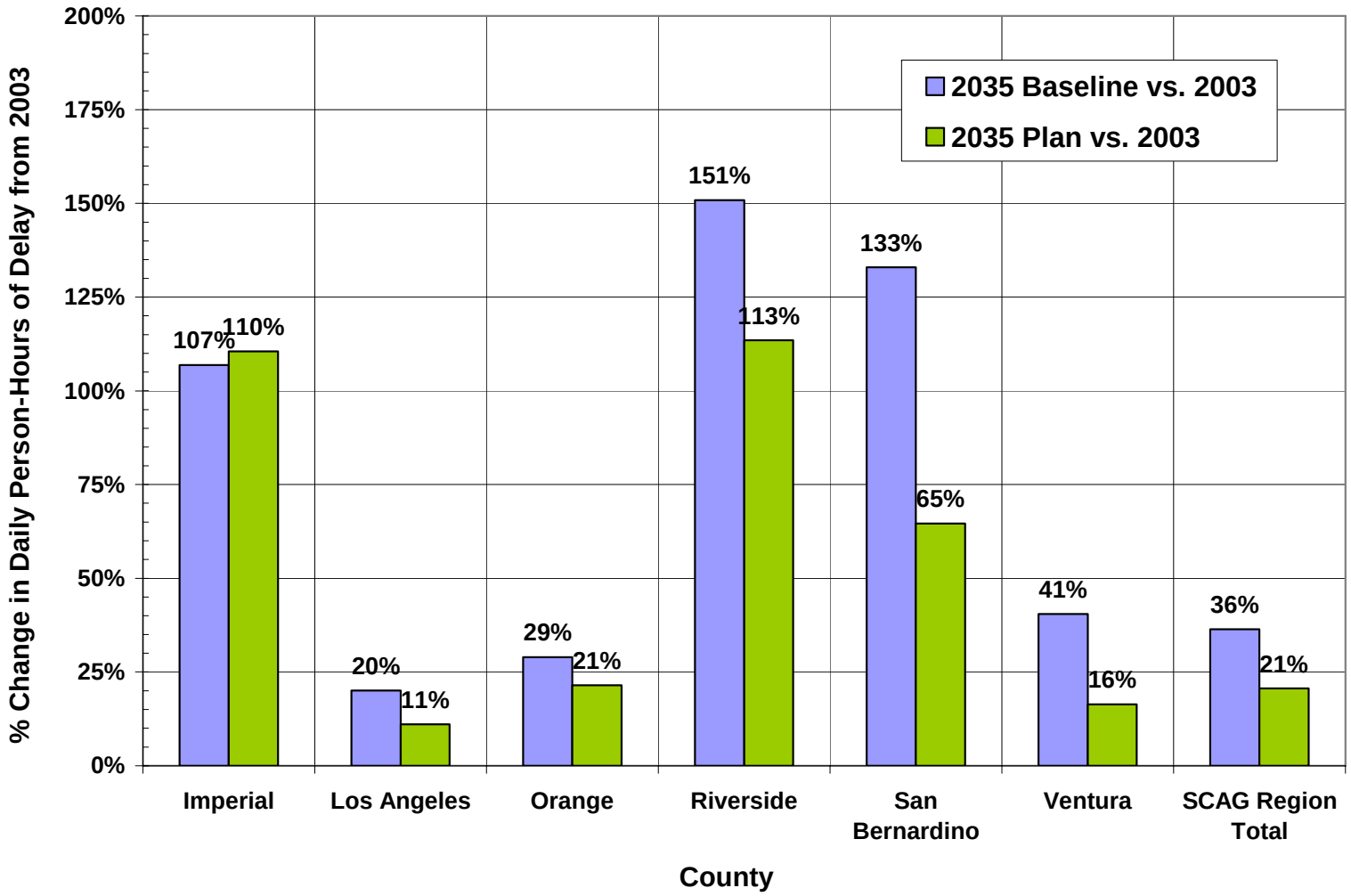
Mobility: Person Minutes of Delay per Capita grows by 36% under the Baseline, but 21% under the Plan



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Mobility: Speed Maps

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2003 Base Year

2035 Baseline

2035 Plan

Travel Demand Model

FREEWAY

Speed Maps

Mobility: Freeway Speeds
2003 Base Year AM Peak Period

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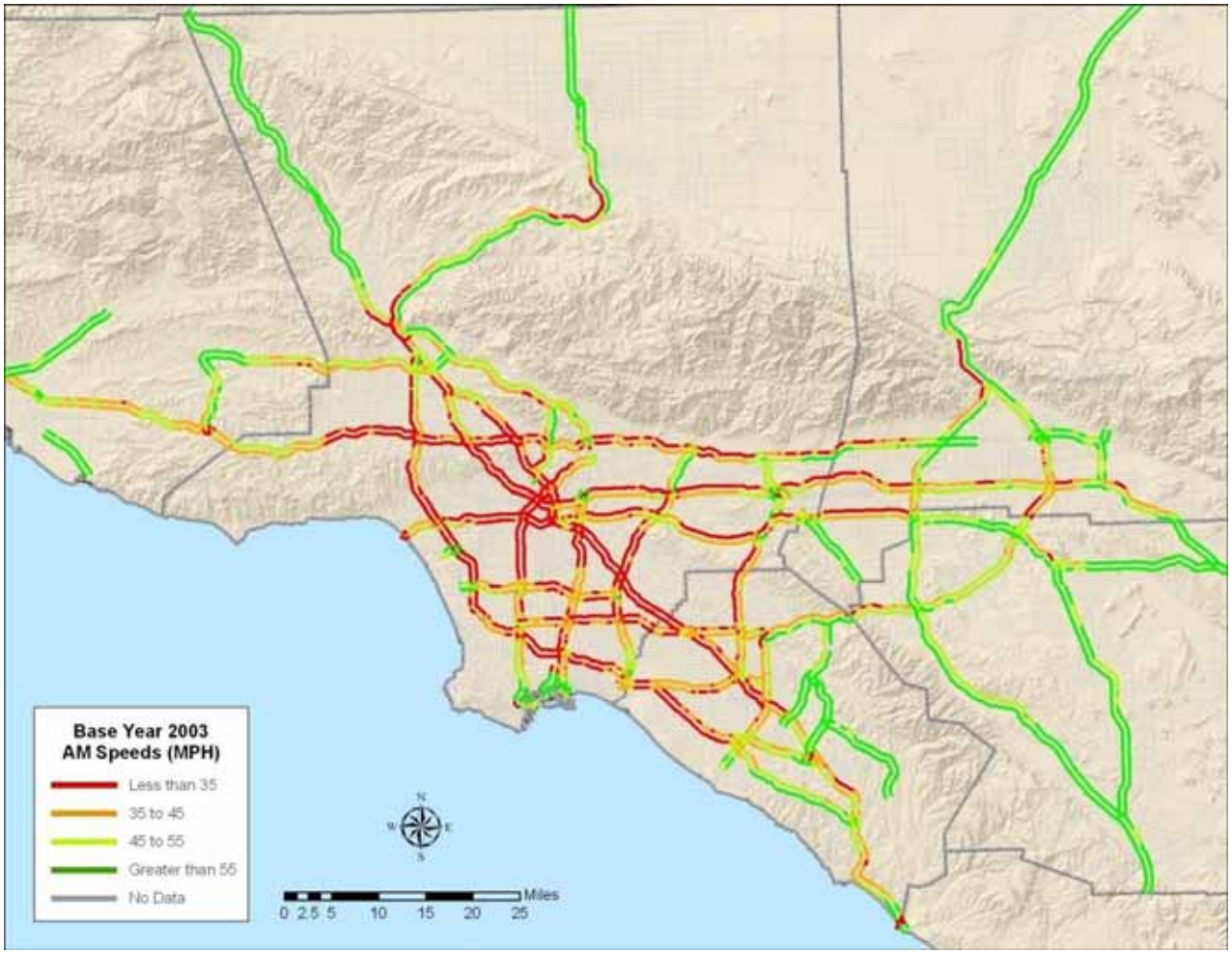

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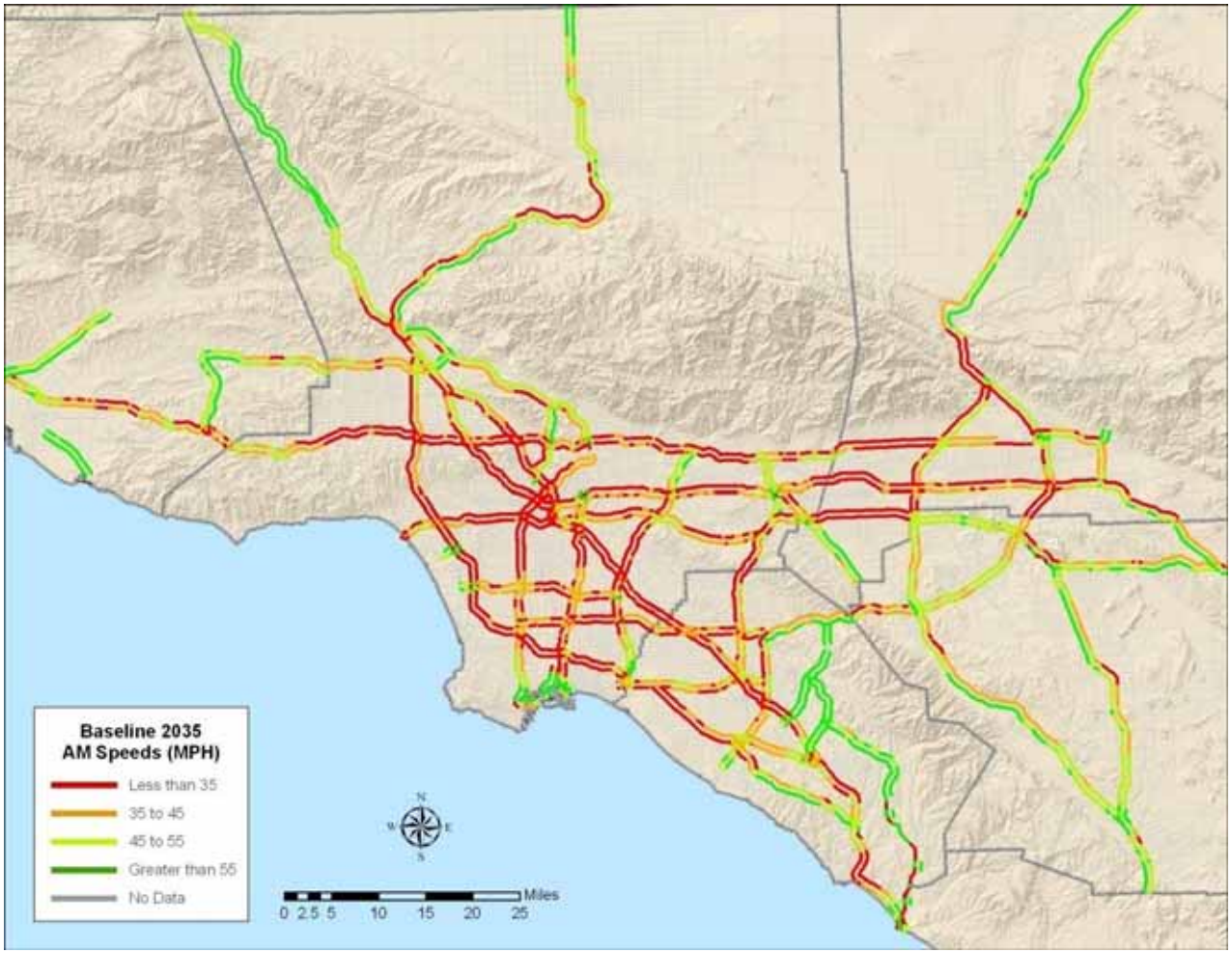
Mobility: Freeway Speeds
2035 Baseline AM Peak Period



Mobility: Freeway Speeds
2035 Plan AM Peak Period

Mobility: Freeway Speeds
2003 Base Year PM Peak Period

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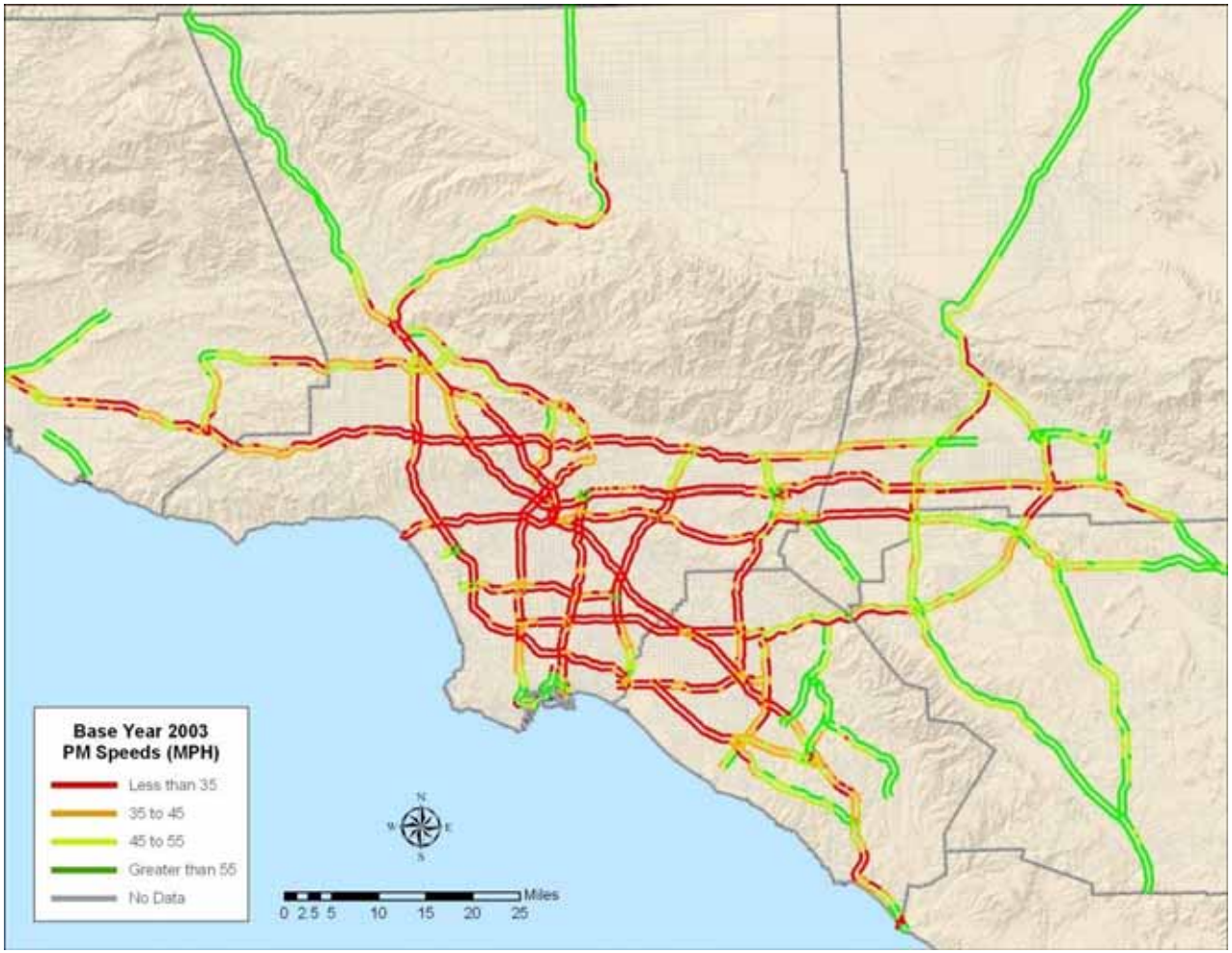

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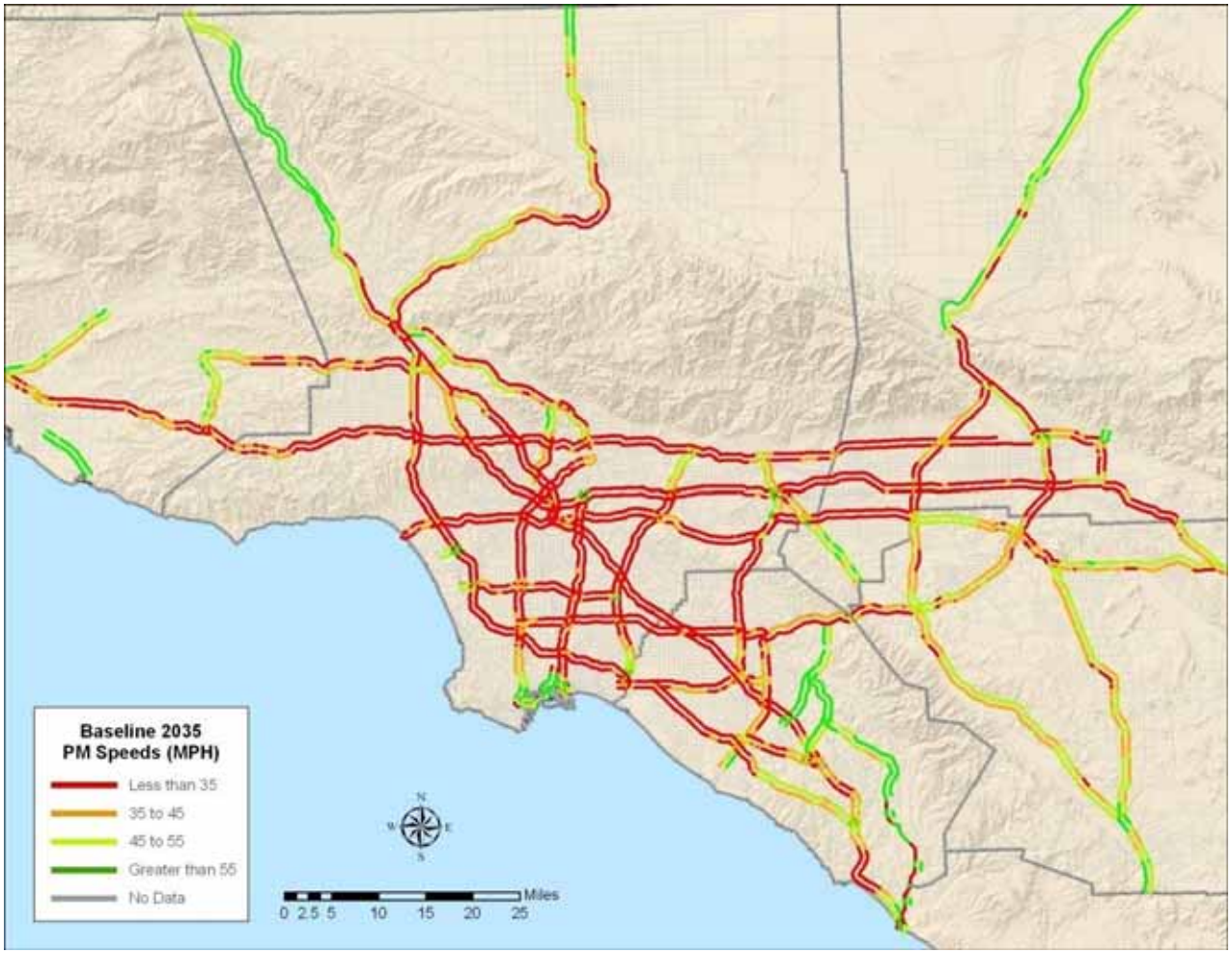
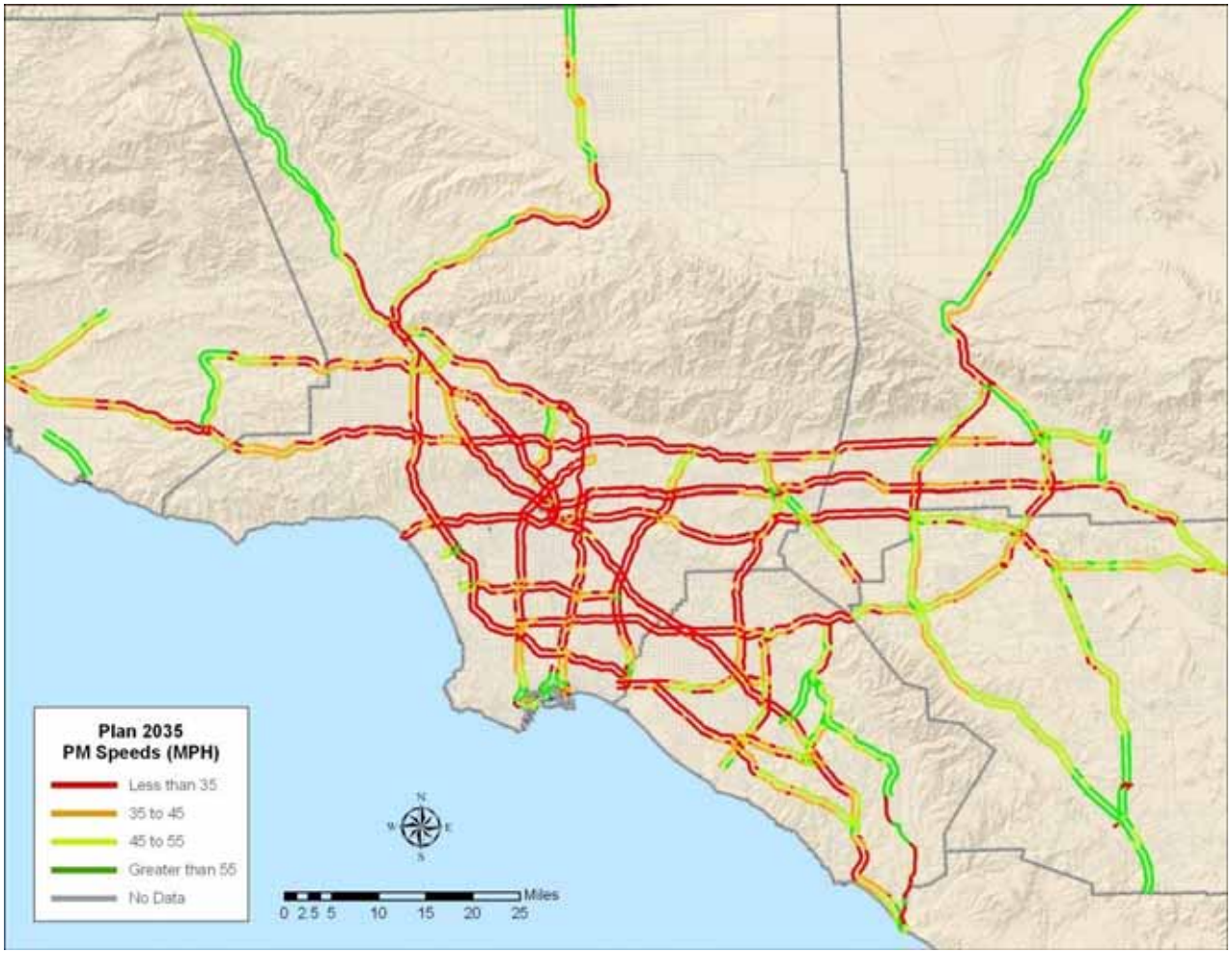
Mobility: Freeway Speeds
2035 Baseline PM Peak Period



Mobility: Freeway Speeds
2035 Plan PM Peak Period



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Mobility: Arterial Speeds

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2003 Base Year

2035 Baseline

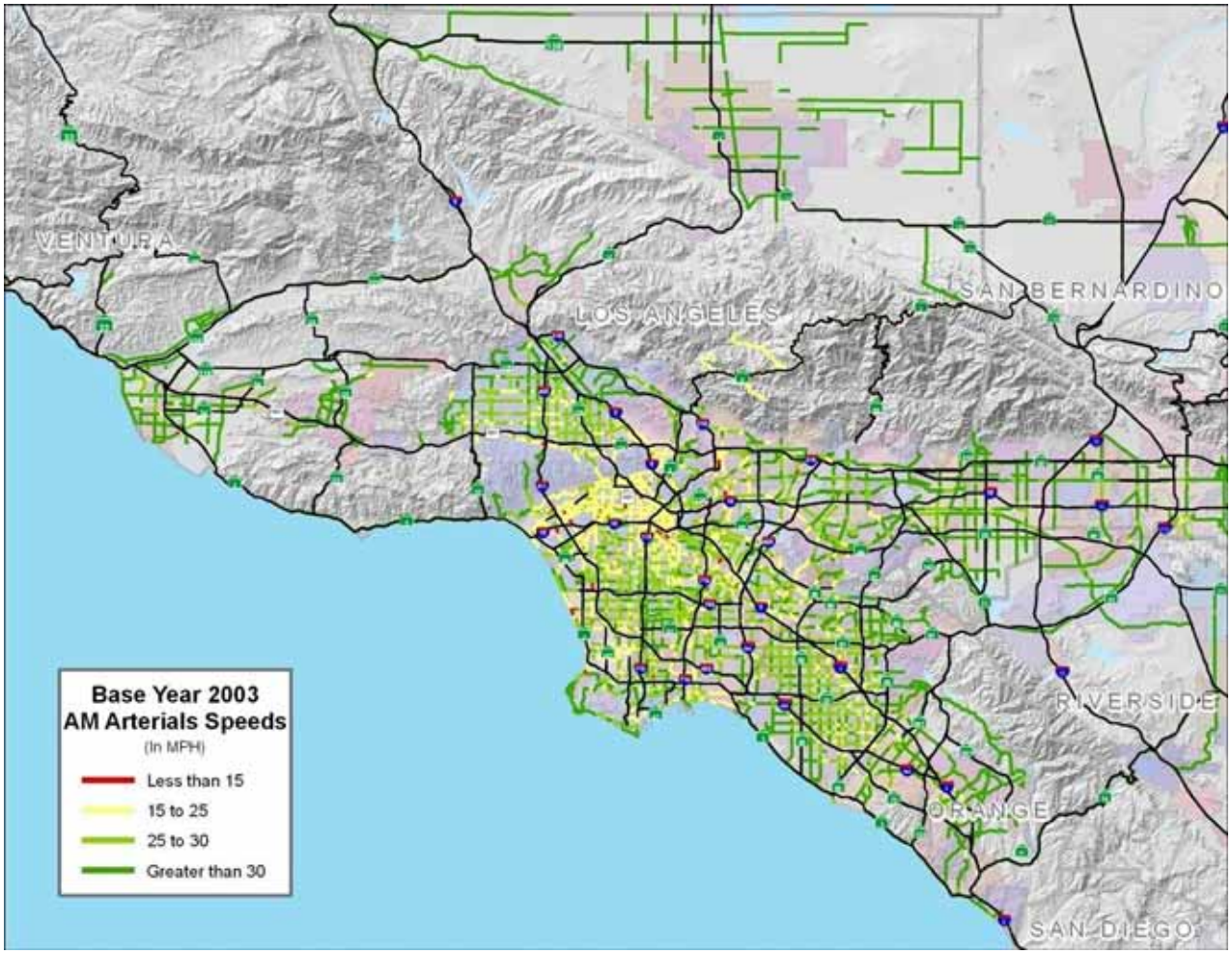
2035 Plan

Travel Demand Model

ARTERIAL

Speed Maps

Mobility: Arterial Speeds
2003 Base Year AM Peak Period



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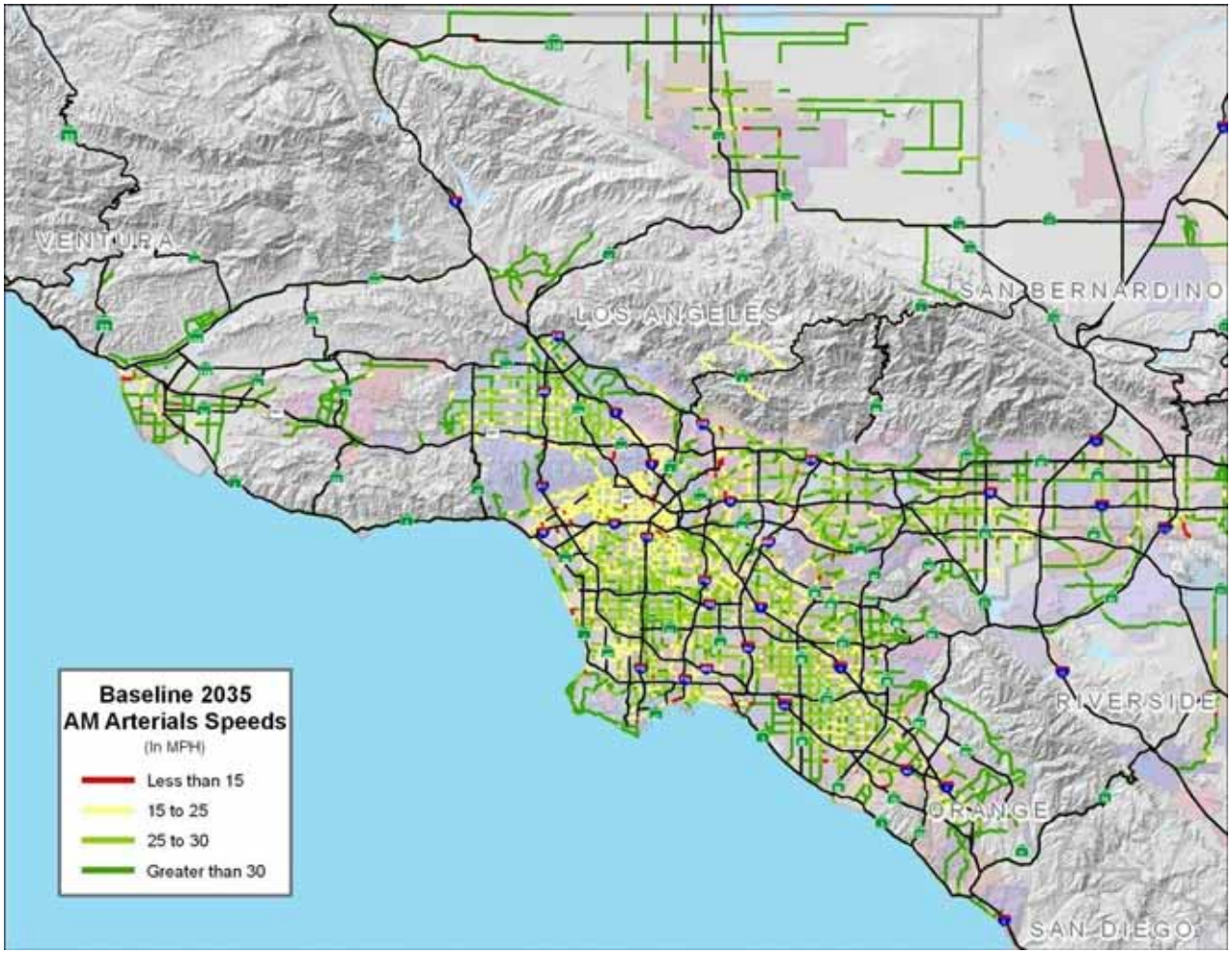
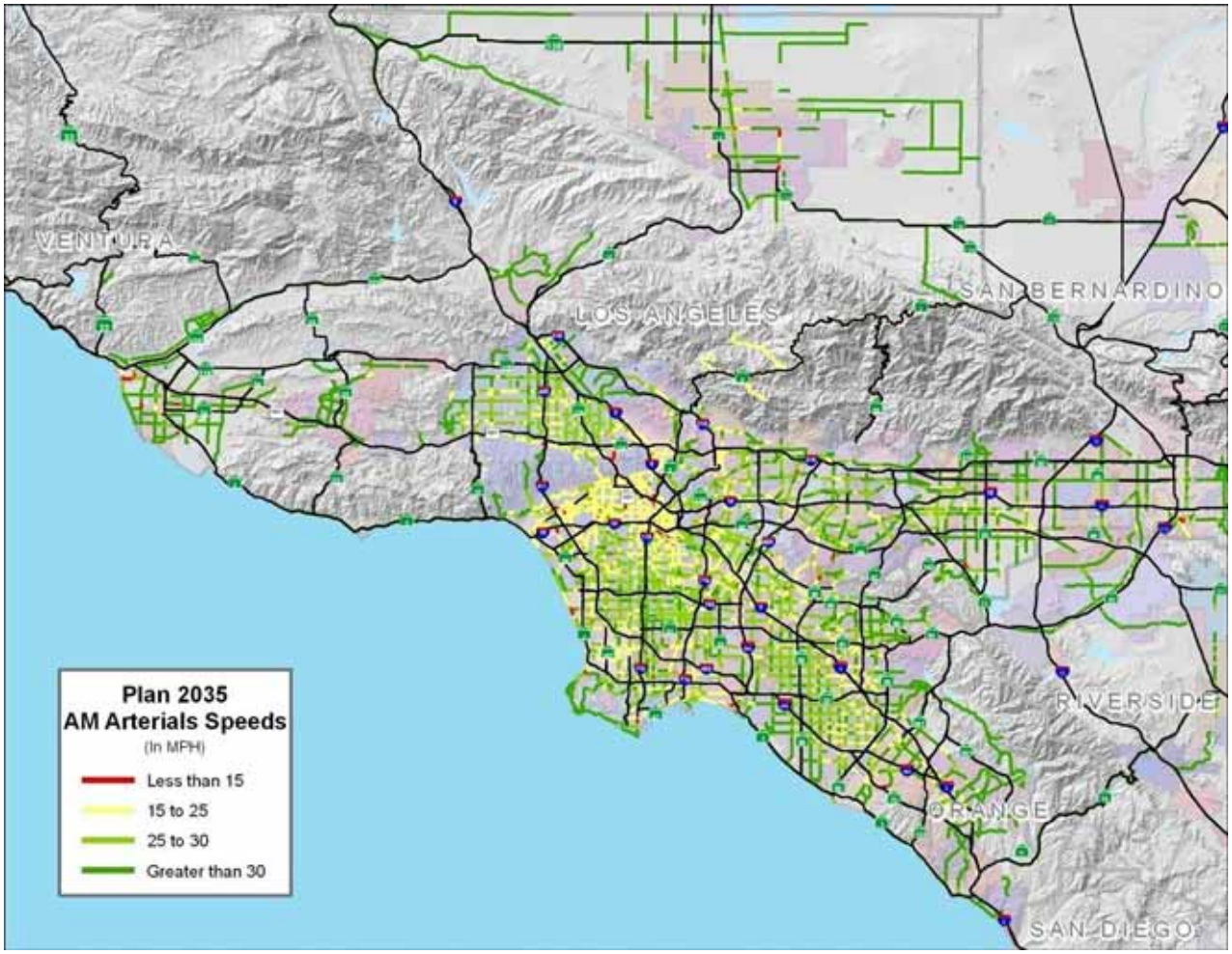
Mobility: Arterial Speeds
2035 Baseline AM Peak Period



Mobility: Arterial Speeds
2035 Plan AM Peak Period



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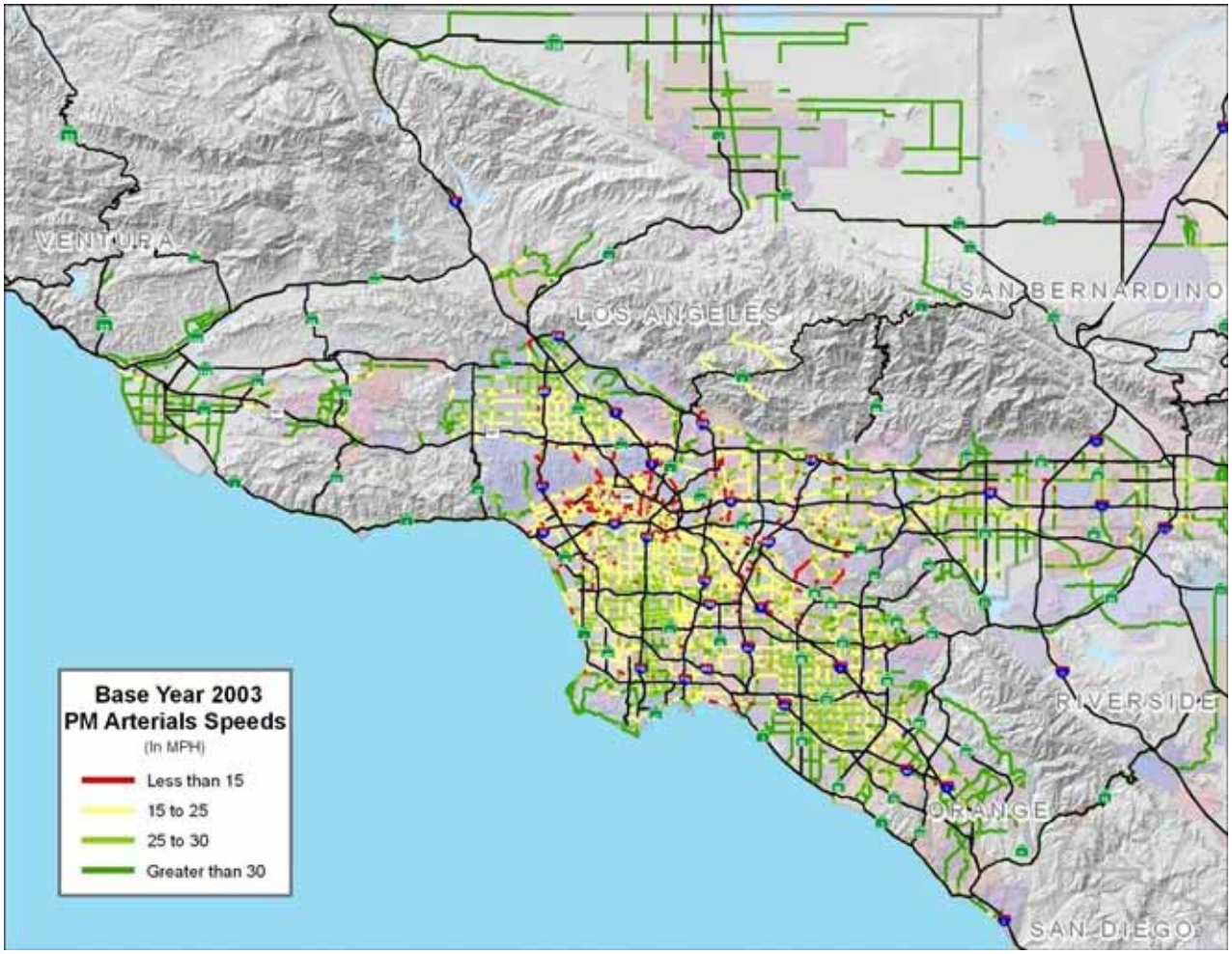
Mobility: Arterial Speeds
2003 Base Year PM Peak Period



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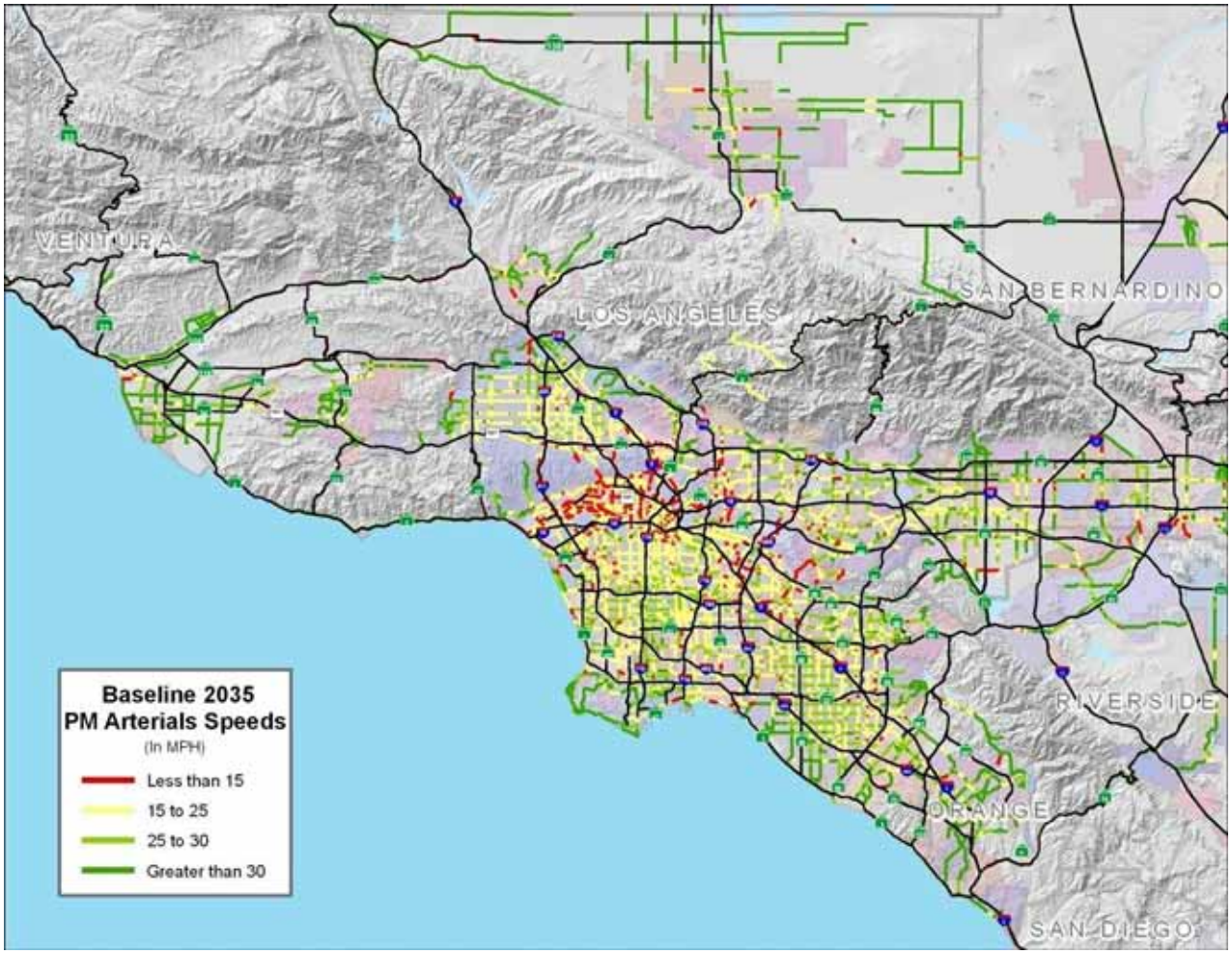
Mobility: Arterial Speeds
2035 Baseline PM Peak Period



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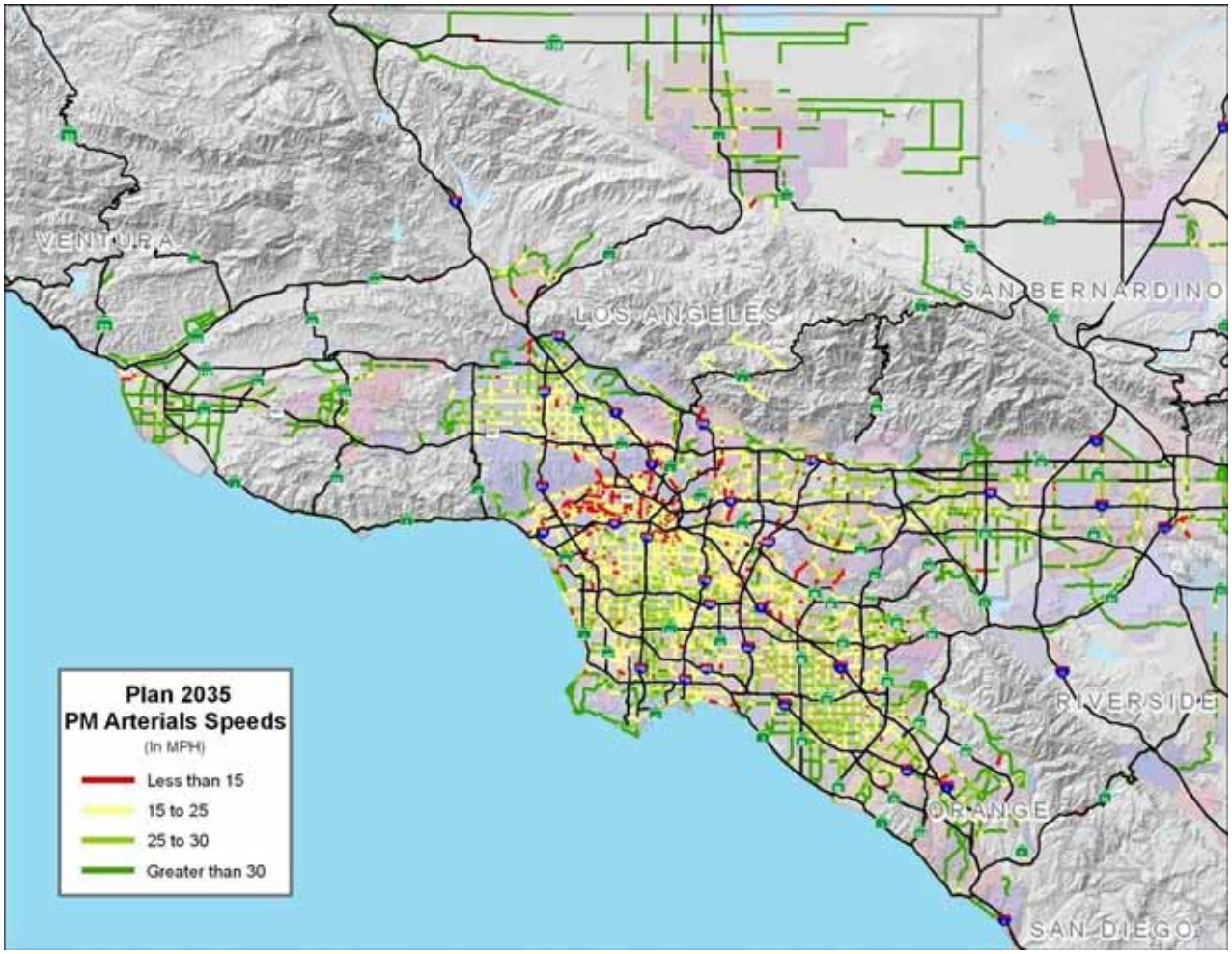
Mobility: Arterial Speeds
2035 Plan PM Peak Period



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Feedback on Mobility?

Accessibility is measured as the percent of PM Peak Period work trips within 45 minutes and the distribution of those trips

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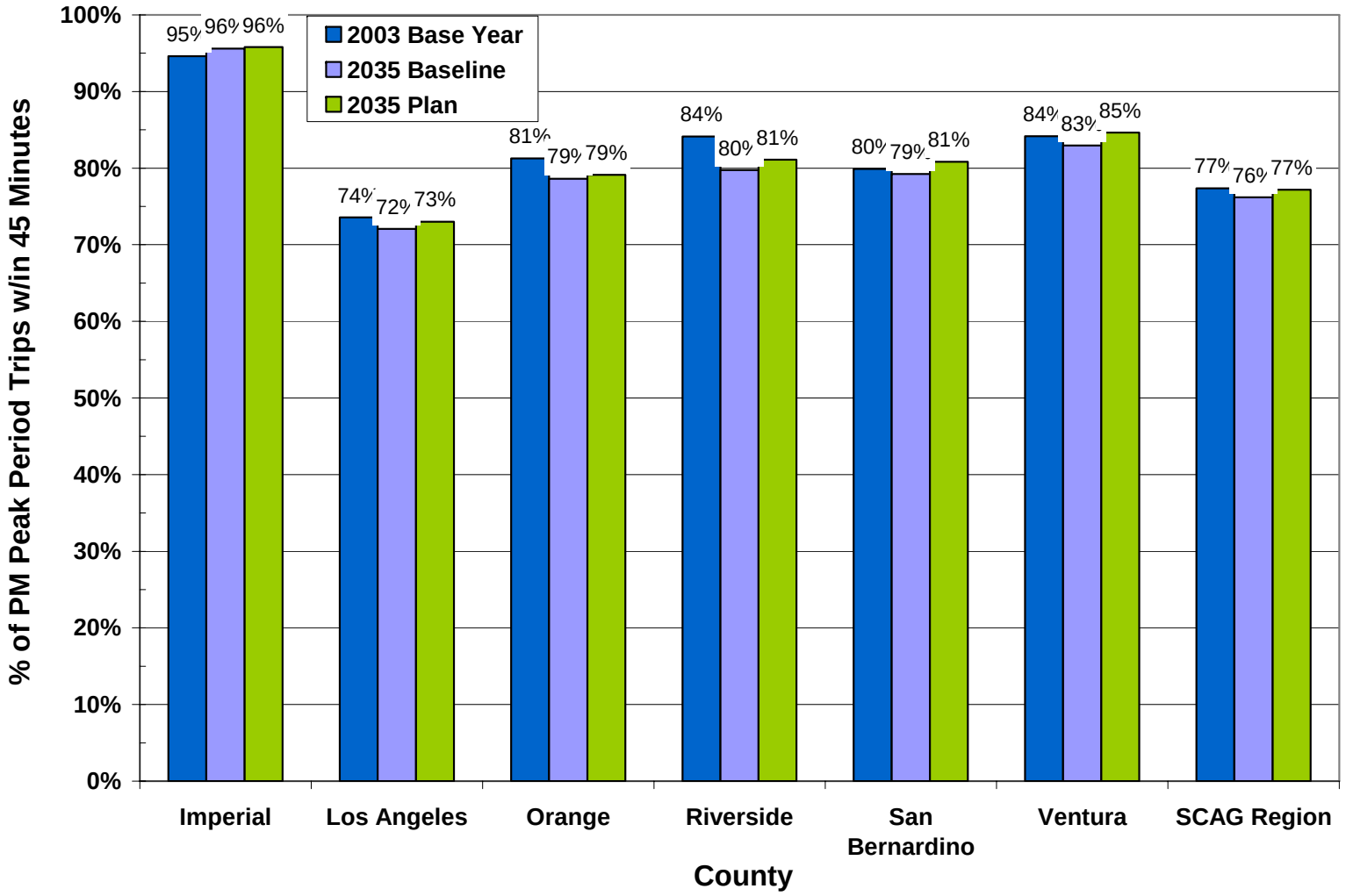
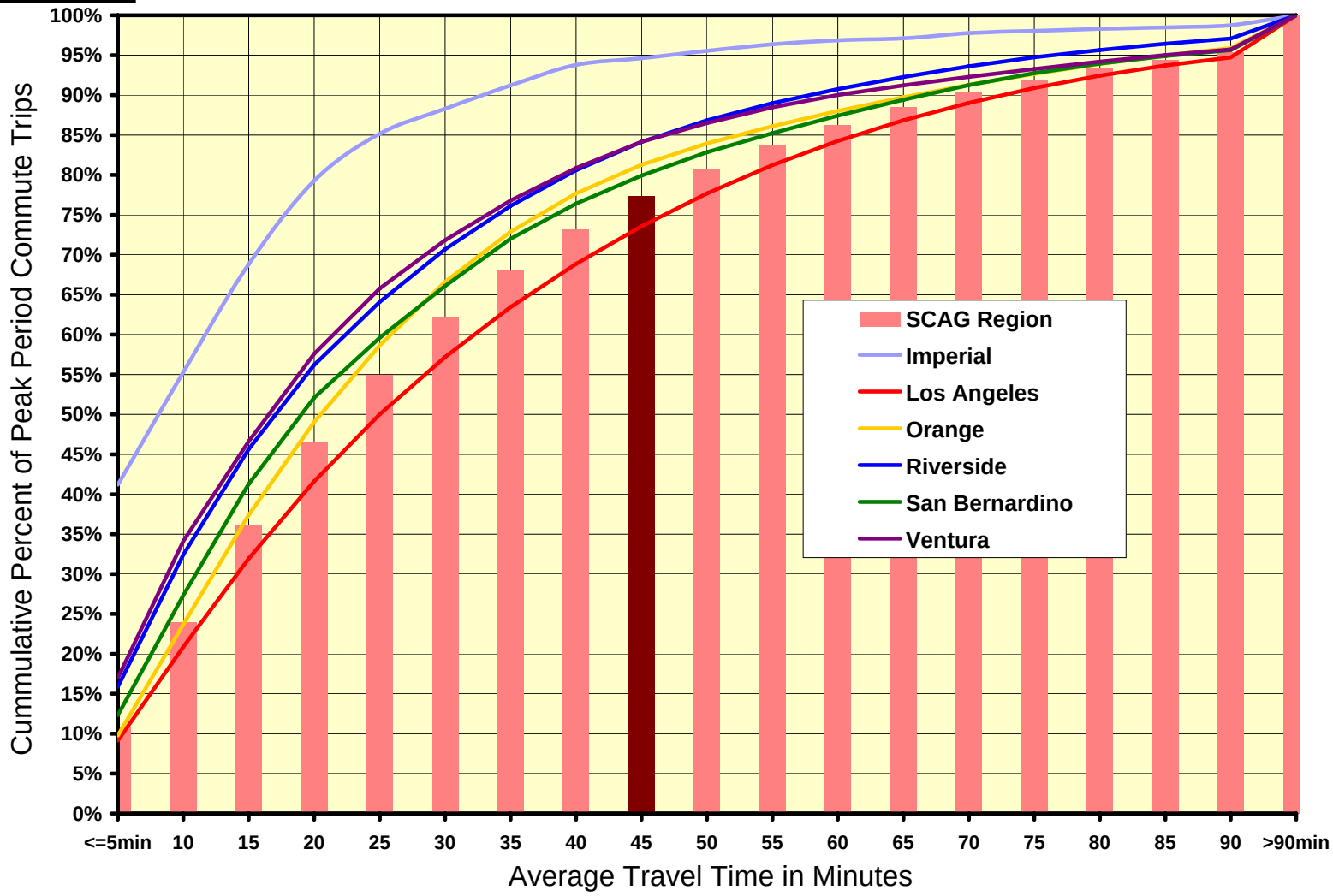
- We have these results for auto home-based work (HBW) trips for the PM Peak period
- We do not have transit accessibility results yet
- This year's RTP includes Imperial County trips
- Auto PM Peak Period HBW trips
  - The percent of trips completed within 45 minutes remains approximately the same for all three model runs (2003, 2035 Baseline, and 2035 Plan)
  - The percent of trips over 90 minutes increases in 2035 compared to 2003

Accessibility (Auto): Percent of Trips w/in 45 Minutes 2003, 2035 Baseline & 2035 Plan



Accessibility (Auto): 2003 PM Peak Period Auto HBW Trip Cumulative Distribution



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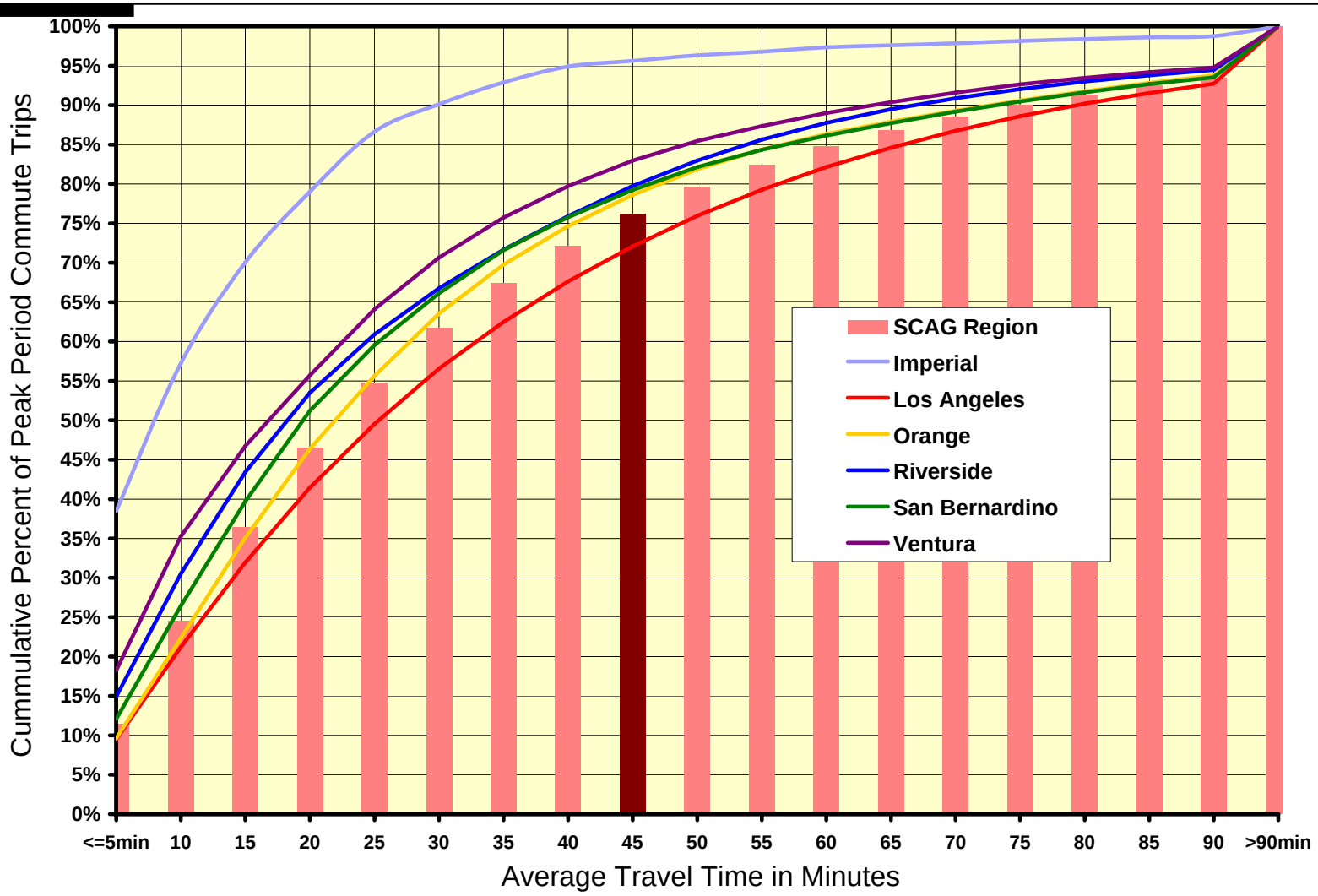
Accessibility (Auto): 2035 Baseline PM Peak Period Auto HBW Trip Cumulative Distribution



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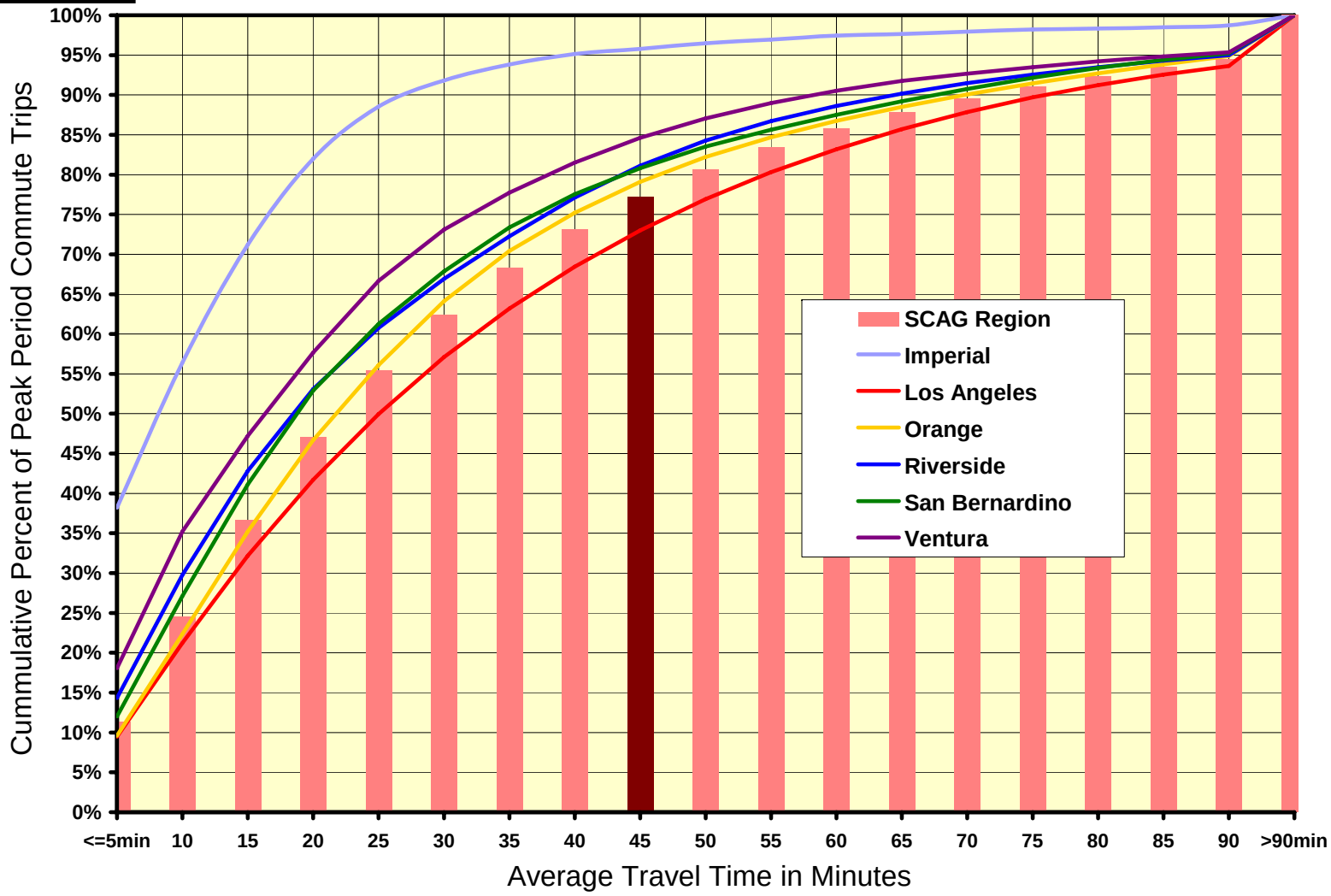
Accessibility (Auto): 2035 Plan PM Peak Period Auto HBW Trip Cumulative Distribution



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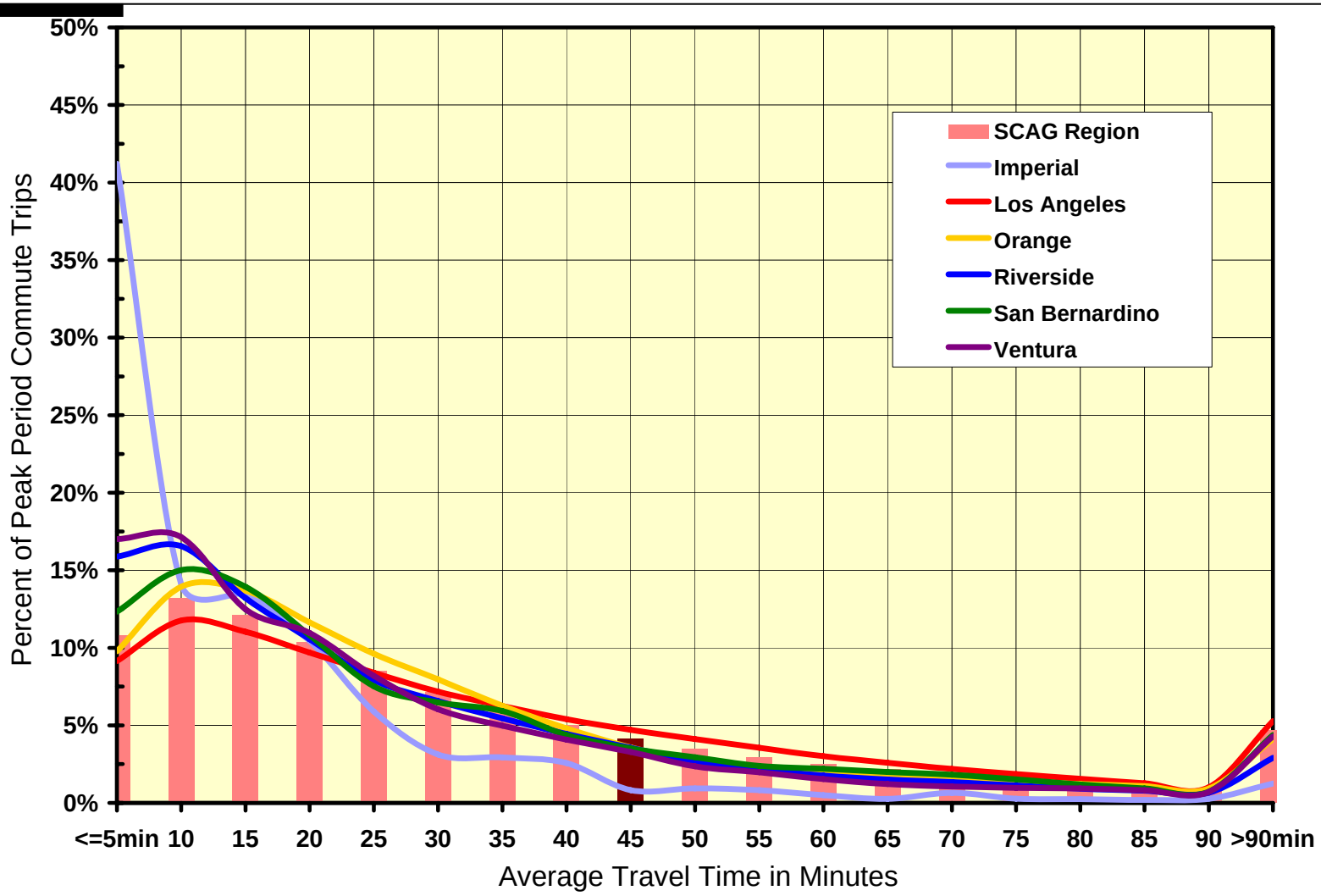

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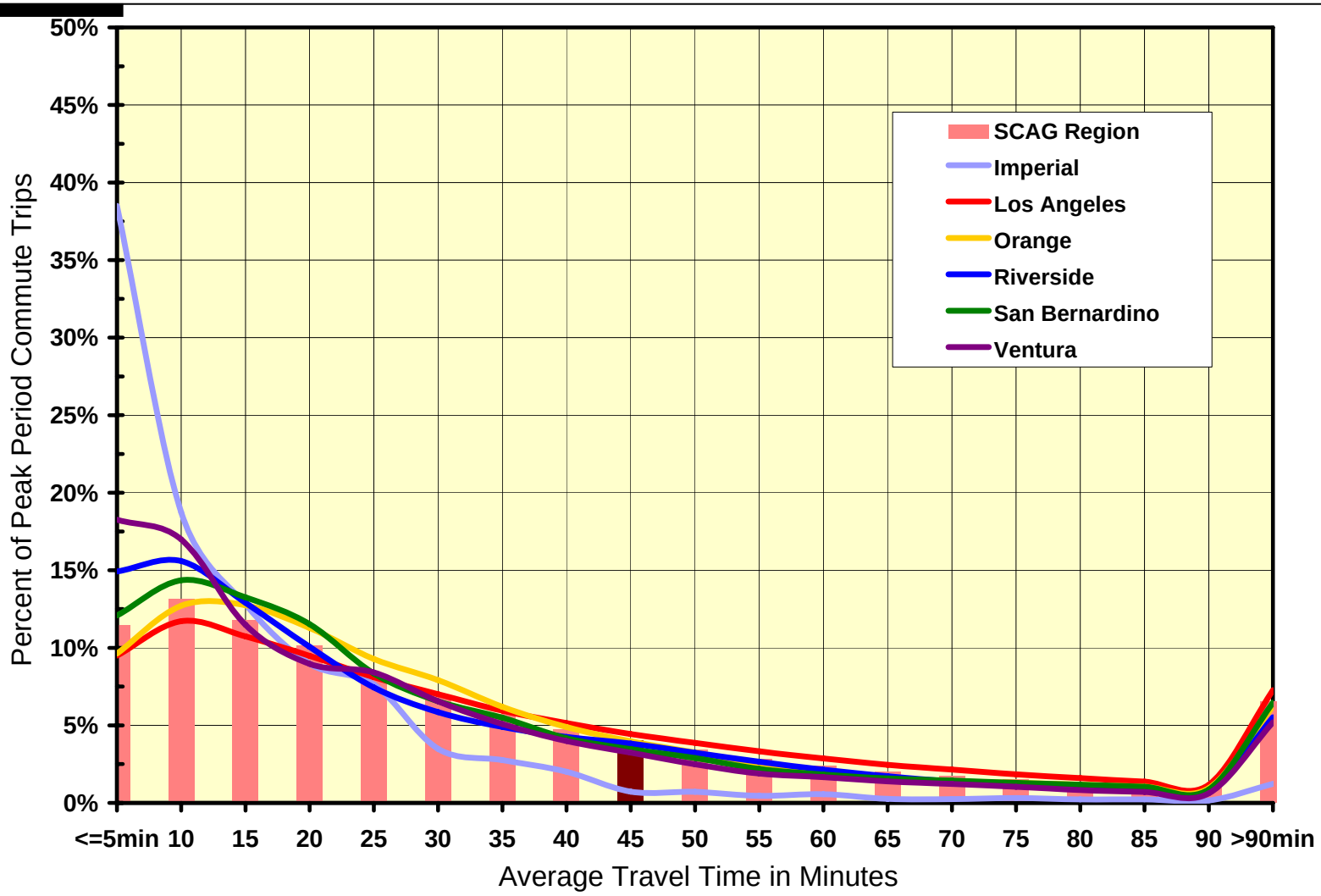

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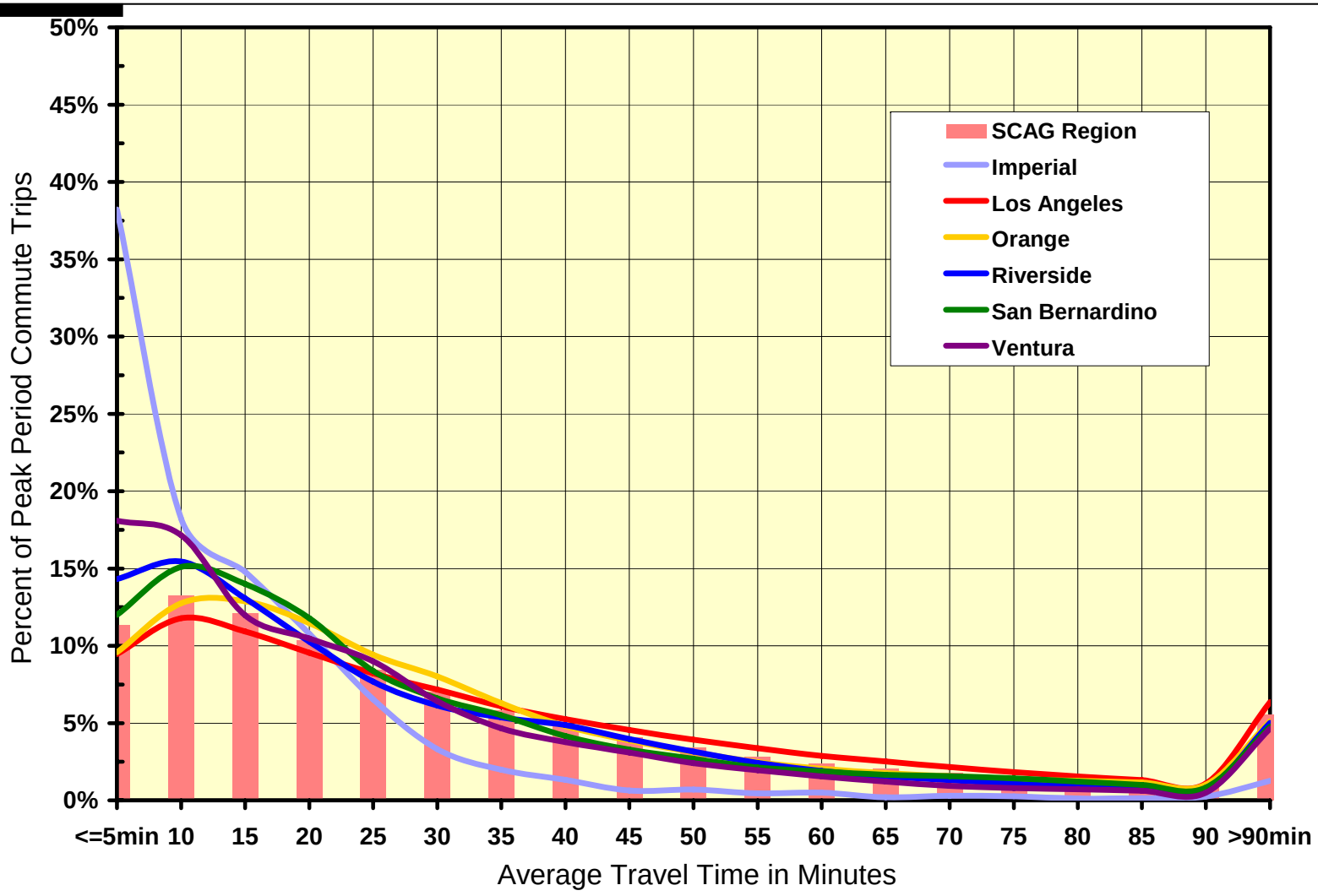
Accessibility (Auto): 2035 Plan PM Peak Period HBW Trip Distribution



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Questions/Feedback?